

The embodiments of the invention in which an exclusive property or privilege is claimed are defined as follows:

1. A method for creating a web page source file in a programmed computer, the method comprising:
 - a) inserting an instance of a client object into a web page;
 - b) permitting the client object instance to obtain from a switchboard a list of available reusable software components;
 - c) receiving from an author selection information identifying a selected one of the available components;
 - d) displaying a customizer interface and permitting an author to specify properties for the selected available component;
 - e) generating runtime text corresponding to the selected available component; and,
 - f) providing the runtime text to the client object.
2. The method of claim 1 wherein the client object comprises a design time control.
3. The method of claim 1 wherein the client object comprises a Java bean encapsulated in an Active X control.
4. The method of claim 1 wherein displaying a customizer interface comprises, invoking a method of the client object to request that the switchboard provide the customizer interface.
5. The method of claim 4 wherein displaying the customizer interface comprises passing from the client object to the switchboard identification information which identifies the selected one of the available components and, at the switchboard, obtaining a list of properties of the selected one of the available components and providing in the customizer interface a control for setting a value of each of the properties.

6. The method of claim 5 wherein displaying the customizer interface comprises providing to the switchboard previously generated runtime text and the method comprises, determining from the runtime text a previously set value for each of the properties and displaying the previously set value for each of the properties in the customizer interface.

5 7. The method of claim 1 wherein generating the runtime text comprises providing an initial tag, a final tag, and runtime text between the initial and final tags.

8. The method of claim 7 wherein the initial tag includes identification information for the selected available component.

10 9. The method of claim 7 wherein generating the runtime text comprises determining whether or not all of the properties are set to default values, in response to the determination, generating a default tag, the default tag having a value which indicates whether or not all of the properties are set to default values, and inserting the default tag into the runtime text.

10. The method of claim 9 comprising producing a source file containing the runtime text.

15 11. The method of claim 10 comprising updating the source file by: identifying runtime text by locating the initial and final tags in the source file; if the default tag indicates that all of the properties are set to default values, determining whether there is a newer version of the component corresponding to the runtime text and, if there is a newer version of the component, generating runtime text corresponding to the newer version of the component, and replacing the runtime text in the source file with the runtime text corresponding to the newer version of the component.

20 12. The method of claim 1 wherein displaying the customizer interface comprises causing the client object to invoke a function and providing the runtime text to the client object

comprises supplying the runtime text to the function and permitting the function to return the runtime text to the client object.

13. A method for updating a web page comprising one or more reusable software components, the method comprising:

- a) providing a web page comprising one or more instances of a client object, each instance of the client object having selection information identifying an original reusable software component having one or more configurable properties;
- b) providing an updated set of software components;
- c) reading from an instance of the client object the selection information and determining whether a newer version of the reusable software component identified by the selection information is available; and,
- d) if a newer version of the reusable software component identified by the selection information is available, replacing the selection information with new selection information identifying the newer version of the reusable software component.

14. The method of claim 13 wherein the newer version of the reusable software component has a common set of one or more properties in common with a set of properties of the original reusable software component and the method comprises:

- a) determining values for properties in the common set of the original reusable software component; and,
- b) automatically setting values for the properties in the common set of the newer version of the reusable software component to be the same as the values of the properties in the common set of the original reusable software component.

15. The method of claim 14 wherein determining values for properties in the common set of the original reusable software component comprises reading runtime text corresponding to the original reusable software component.

16. A method for updating source code for a web page, the source code comprising one or more blocks of runtime text each corresponding to a configurable reusable component, each block of runtime text comprising a default indicator indicating whether or not the corresponding configurable reusable component was in a default configuration, the method comprising:

- a) selecting a block of runtime text for which the default indicator indicates that the corresponding configurable reusable component was in a default configuration;
- b) identifying a configurable reusable component corresponding to the selected block of runtime text;
- c) determining whether there is a newer version of the configurable reusable component;
- d) if there is a newer version of the configurable reusable component, generating runtime text corresponding to the newer version of the configurable reusable component; and,
- e) replacing the block of runtime text in the source code with the runtime text corresponding to the newer version of the component.

17. The method of claim 16 comprising repeating the steps recited in claim 16 for all of the blocks of runtime text for which the default indicator indicates that the corresponding configurable reusable component was in a default configuration.

18. The method of claim 17 wherein the default indicator comprises a tag.

19. Apparatus for creating web pages, the apparatus comprising a computer system having:

- a) a client software object, the client software object capable of retrieving a list of one or more available reusable software components, identifying a selected one of the available reusable software components selected by an author, and receiving runtime text corresponding to the selected reusable software component;

- b) web publishing software capable of incorporating runtime text from one or more instances of the software client object in a source file for a web page; and,
- c) switchboard software capable of generating runtime text corresponding to the selected reusable component and providing the runtime text to a corresponding instance of the client software object for inclusion in the runtime file.

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20. The apparatus of claim 19 wherein the client software object comprises a Design Time Control.

21. The apparatus of claim 19 wherein client software object comprises a Design Time Control, the Design Time Control comprising a JAVA Bean encapsulated in an Active X control.

22. The apparatus of claim 19 comprising an update tool, the update tool comprising software which causes the computer system to:

- a) read properties of an original instantiated reusable component;
- b) instantiate an updated version of the instantiated reusable component; and,
- c) configure properties of the updated version of the instantiated reusable component to match the properties of the original instantiated reusable component.

23. Apparatus for creating web pages, the apparatus comprising a computer system providing:

- a) one or more available reusable software components, each comprising rules for the generation of corresponding runtime text;
- b) a means for providing a list of available reusable components;
- c) a means for configuring properties of a selected reusable component;
- d) a client software object, adapted to receive the list of available reusable components, to allow an author to select one of the available reusable components

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and to receive runtime text from the selected one of the available reusable components.

24. The apparatus of claim 23 comprising web publishing software capable of instantiating a plurality of instances of the client software object and incorporating the received runtime text from each of the instances of the client software object into a source file.

25. The apparatus of claim 24 wherein the client software object comprises a design time control.

26. An article of manufacture comprising a program storage medium readable by a computer and embodying one or more instructions executable by the computer to perform a method for creating a web page according to any of claims 1, 13, 16, 17 or 18.